REMARKS

Request for Extension of Time

Applicant respectfully requests that the shortened statutory period that expired on December 27, 2004, be extended by three months to expire on March 27, 2005.

Claims 1-13 are pending and active in this application. Claims 1-13 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors at the time the application was filed had possession of the claimed invention.

As in related Application Serial No. 09/700,037, independent Claim 1 has been amended to insert the phrase "quantifiable characteristics" in place of the reference to embryo quality.

In accordance with the request made by the Examiner on July 15, 2004, applicants submit herewith a declaration by inventor Toland setting forth facts that establish that by applying a Lorenz curve classification algorithm to raw image data collected from plant embryos of known quantifiable characteristics, a single metric classification model can be developed and used to classify plant embryos of unknown quantifiable characteristics, according to their putative quantifiable characteristics as recited in Claims 1-13, thus confirming that Claims 1-13 comply with 35 U.S.C. § 112, first paragraph.

Request for Correction of Inventorship Under 37 C.F.R. § 1.48(b)

The undersigned requests that Roger Timmis, Timnit Ghermay, William C. Carlson and James A. Grob be deleted as inventors from the subject application. Each of the above-named inventors is being deleted from the subject application because those inventors' invention is no longer being claimed in the subject application. The appropriate fee under 37 C.F.R. § 1.17(i) is enclosed herewith.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

Rejection Under 35 U.S.C. § 112, Second Paragraph

Claims 1-13 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicants regard as the invention. The Examiner's Action states that it is unclear what exactly "quality" of an embryo is in the instant claims. As noted above, applicant has amended Claims 1-13 to remove reference to quality and replace it with the phrase "quantifiable characteristics."

As detailed in the present specification at page 6, lines 32-33, the quantifiable characteristics are "any embryo quality that is amenable to characterization." Specific examples of embryo quality susceptible to characterization include conversion potential, resistance to pathogens, drought resistance, heat and cold resistance, salt tolerance, preference for light quality, suitability for long term storage, or any other plant quality susceptible to quantification. See page 6, line 37 through page 7, line 7. Thus, Claim 1 is directed to a method for classifying plant embryos according to their "quantifiable characteristics." Clearly, these can be the quantifiable characteristics relating to plant embryo quality described above, but the method that applicant claims as his invention is not necessarily limited to those specific quantifiable characteristics. It is not applicant's intent that Claim 1 be limited to specific quantifiable characteristics. Thus, applicant asserts that Claims 1-13 do claim the subject matter that applicant regards as his invention.

Focusing more specifically on dependent Claims 7 and 8, these dependent claims more specifically define the quantifiable characteristics and therefore more narrowly define the subject matter that applicant regards as his invention. Finally, turning to new Claim 14, like Claims 7 and 8, new Claim 14 more narrowly defines the quantifiable characteristics recited in Claim 1. Clearly, Claims 7, 8 and new Claim 14 recite subject matter that applicant regards as his invention.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

For the foregoing reasons, applicant asserts that the subject matter of Claims 1-14 satisfy the requirements of 35 U.S.C. § 112, second paragraph.

Rejection Under 35 U.S.C. § 102/103

Claims 1-13 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Chi et al. or Vits et al. For the following reasons, applicant respectfully traverses this rejection.

Independent Claim 1 and Claims 2-13 that depend therefrom recite a method of classifying plant embryos according to their quantifiable characteristics that includes the step of calculating a Lorenz curve from two sets of metric values. In addition, independent Claim 1 recites using any point on the Lorenz curve as a threshold value to arrive at a single metric classification model. The subject matter of independent Claim 1 is novel over Chi et al. and Vits et al. because neither Chi et al. nor Vits et al. disclose the step of calculating a Lorenz curve or using any point on the Lorenz curve as a threshold value. Accordingly, the subject matter of independent Claim 1 and Claims 2-13 that depend therefrom is novel over Chi et al. and Vits et al.

The Examiner's Action also asserts that the subject matter of Claims 1-13 is obvious over Chi et al. and/or Vits et al. For the following reasons, applicant respectfully traverses this rejection.

The Examiner's Action asserts that to the extent the subject matter of Claim 1 is not anticipated by Chi et al. and/or Vits et al., due to different mathematical means for comparing embryos, such difference would have been obvious where the classification algorithms used are a known statistical means for comparing similar types of data. Based on this, the Examiner's Action concludes that the subject matter of Claims 1-13 is *prima facie* obvious.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the references' teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. Applicant asserts that the Examiner's *prima facie* case of obviousness fails for at least the reason that Chi et al. and Vits et al. alone or in combination do not teach all of the limitations of Claim 1.

Independent Claim 1 recites in step (a)(v):

> using any point on the Lorenz curve calculated in step (a)(iv) as a threshold value to arrive at a single metric classification model for classifying plant embryos by their quantifiable characteristics.

Without making any admissions regarding the presence of some suggestion or motivation to modify the teachings of Chi et al. or Vits et al. to employ a Lorenz curve based classification algorithm, applicant points out that the Examiner has not identified any prior art teaching relating to calculation of Lorenz curves and their use as a classification algorithm. As explained in the present specification, Lorenz curves were developed to compare income distribution among different groups of people. Such Lorenz curves were created by plotting the fraction of income versus the fraction of the population that owns that fraction of the income. Such applications of Lorenz curves do not teach using any point on a Lorenz curve as a threshold value to arrive at a single metric classification model. In the absence of any teaching in the art of such step, applicant asserts that the subject matter of independent Claim 1 and the claims dependent therefrom is nonobvious over Chi et al. and/or Vits et al.

For the foregoing reasons, applicant asserts that the subject matter of Claims 1-13 is novel and nonobvious over Chi et al. and/or Vits et al. Accordingly, applicant respectfully requests withdrawal of the outstanding rejection.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

If the reviewing party has any questions regarding the above, he is invited to call applicant's attorney at the number listed below so that any outstanding issues can be resolved in a timely and efficient manner.

Respectfully submitted,

CHRISTENSEN O'CONNOR
JOHNSON KINDNESS PLLC

Jeffrey M. Sakoi
Registration No. 32,059
Direct Dial No. 206.695.1713

I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

Date: March 15, 2005 Shannon Lich

JMS:ejh/gm

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100